Form Approved. O.M.B. Nos. 2070-0012 and 2070-0038

U.S. ENVIRONMENTAL PROTECTION AGENCY			AGENCY USE ONLY
EPA	**PREMANUFACTURE NOTICE** **FOR NEW CHEMICAL SUBSTANCES**		Date of receipt:
When completed, send this form to:	**If sending by Courier:** Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1201 Constitution Ave NW WASHINGTON, D.C. 20460 Contact Numbers: 202-564-8930/8940	**If sending by US Mail:** Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1200 Pennsylvania Ave NW WASHINGTON, D.C. 20460	**Submission Report Number** XWMS130306290290563

Total Number of Pages	User Fee Payment ID Number	TS Number
157	74413064688	WSM213

GENERAL INSTRUCTIONS

- You must provide all information requested in this form to the extent that it is known to or reasonably ascertainable by you. Make reasonable estimates if you do not have actual data.
- Before you complete this form, you should read the "Instructions Manual for Premanufacture Notification" (the Instructions Manual is available from the Toxic Substances Control Act (TSCA) Information Service by calling 202-554-1404, or faxing 202-554-5603).
- If a user fee has been remitted for this notice (40 CFR 700.45), indicate in the boxes above the TS-user fee identification number you have generated. Remember, your user fee ID number must also appear on your corresponding fee remittance. For mailing address information see the Help instructions in the e-PMN tool.

Part I – GENERAL INFORMATION

You must provide the currently correct Chemical Abstracts (CA) Name of the new chemical substance, even if you claim the identity as confidential. You may authorize another person to submit chemical identity information for you, but your submission will not be complete and the review will not begin until EPA receives this information. A letter in support of your submission should reference your TS user fee identification number. For all Section 5 Notice submissions (paper or electronic) you must submit an original notice including all test data; if you claimed any information as confidential, an original sanitized copy must also be submitted.

Part II – HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

If there are several manufacture, processing, or use operations to be described in Part II, sections A and B of this notice, reproduce the sections as needed.

Part III – LIST OF ATTACHMENTS

For paper submissions, attach additional sheets if there is not enough space to answer a question fully. Label each continuation sheet with the corresponding section heading. In Part III, list these attachments, any test data or other data and any optional information included in the notice.

OPTIONAL INFORMATION

You may include any information that you want EPA to consider in evaluating the new substance. On page 11 of this form, space has been provided for you to describe pollution prevention and recycling information you may have regarding the new substance. "Binding" boxes are included throughout this form for you to indicate your willingness to be bound to certain statements you make in this section, such as use, production volume, protective equipment . . . The intention is to reduce delays that routinely accompany the development of consent orders or Significant New Use Rules. Checking a "binding" box in a PMN does not by itself prohibit the submitter from later deviating from the information (except chemical identity) reported in the form; however, in the case of exemption applications (such as TMEA, LVE, LOREX) certain information provided in such notifications is binding on the submitter when the Agency approves the exemption application, especially if the production volume "binding" box is chosen in a LVE.

CONFIDENTIALITY CLAIMS

You may claim any information in this notice as confidential. To assert a claim on the form, mark (X) the confidential box next to the information that you claim as confidential. To assert a claim in an attachment, circle or bracket the information you claim as confidential. If you claim information in the notices as confidential, you must also provide a sanitized version of the notice, (including attachments). For additional instructions on claiming information as confidential, read the Instructions Manual.

TEST DATA AND OTHER DATA

You are required to submit all test data in your possession or control and to provide a description of all other data known to or reasonably ascertainable by you, if these data are related to the health and environmental effects on the manufacture, processing, distribution in commerce, use, or disposal of the new chemical substance. Standard literature citations may be submitted for data in the open scientific literature. Complete test data (written in English), not summaries of data, must be submitted if they do not appear in the open literature. You should clearly identify whether test data is on the substance or on an analog. Also, the chemical composition of the tested material should be characterized. Following are examples of test data and other data. Data should be submitted according to the requirements of §720.50 of the Premanufacture Notification Rule (40 CFR Part 720).

Test Data (Check Below any included in this notice)

[X]	Environmental fate data	[ ]	Other Data
[X]	Health effects data	[ ]	Risk Assessments
[ ]	Environmental effects data	[ ]	Structure/activity relationships
[X]	Physical/Chemical Properties (A physical and chemical properties worksheet is located on the last page of this form.)		
[ ]	Test data not in the possession or control of the submitter		

TYPE OF NOTICE (Check Only One)

- [X] **PMN** (Premanufacture Notice)
- [ ] **SNUN** (Significant New Use Notice)
- [ ] **TMEA** (Test Marketing Exemption Application)
- [ ] **LVE** (Low Volume Exemption) @ 40 CFR 723.50(c)(1)
- [ ] **LOREX** (Low Release/Low Exposure Exemption) @ 40 CFR 723.50(c)(2)
- [ ] **LVE** Modification
- [ ] **LOREX** Modification
- [ ] **Mock Submission**
- [ ] Mark (X) if pending Letter of Support

IS THIS A CONSOLIDATED PMN (Y/N)? ____

# of chemicals or polymers (Prenotice Communication # required, enter # on p. 3). ____

- [X] Mark (X) if any information in this notice is claimed as confidential.

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The public reporting and recordkeeping burden for this collection of information is estimated to average 93 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA Form 7710-25 to this address.

CERTIFICATION -- A printed copy of this signature page, with original signature, must be submitted with CD or paper submission.

I certify that to the best of my knowledge and belief:

1. The company named in Part I, section A, subsection 1a of this notice form intends to manufacture, import or process for a commercial purpose, other than in small quantities solely for research and development, the substance identified in Part I, Section B.
2. All information provided in this notice is complete and truthful as of the date of submission.
3. I am submitting with this notice all test data in my possession or control and a description of all other data known to or reasonably ascertainable by me as required by §720.50 of the Premanufacture Notification Rule.

Additional Certification Statements:

If you are submitting a PMN, Intermediate PMN, Consolidated PMN, or SNUN, check the following **user fee** certification statement that applies:

- [X] The Company named in Part I, Section A has remitted the fee of $2500 specified in 40 CFR 700.45(b), or
- [ ] The Company named in Part I, Section A has remitted the fee of $1000 for an Intermediate PMN (defined @ 40 CFR 700.43) in accordance with 40 CFR 700.45(b), or
- [ ] The Company named in Part I Section A is a small business concern under 40 CFR 700.43 and has remitted a fee of $100 in accordance with 40 CFR 700.45(b).

If you are submitting a **Low Volume Exemption (LVE)** application in accordance with 40 CFR 723.50(c)(1) or a **Low Release and Low Exposure Exemption (LoRex)** application in accordance with 40 CFR 723.50(c)(2), check the following certification statements:

- [ ] The manufacturer submitting this notice intends to manufacture or import the new chemical substance for commercial purposes, other than in small quantities solely for research and development, under the terms of 40 CFR 723.50.
- [ ] The manufacturer is familiar with the terms of this section and will comply with those terms; and
- [ ] The new chemical substance for which the notice is submitted meets all applicable exemption conditions.
- [ ] If this application is for an LVE in accordance with 40 CFR 723.50(c)(1), the manufacturer intends to commence manufacture of the exempted substance for commercial purposes within 1 year of the date of the expiration of the 30 day review period.

The accuracy of the statements you make in this notice should reflect your best prediction of the anticipated facts regarding the chemical substance described herein. Any knowing and willful misrepresentation is subject to criminal penalty pursuant to 18 USC 1001.				Confidential
Signature and title of Authorized Official (Original Signature Required)		Date		☐

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Part I -- GENERAL INFORMATION

Section A – SUBMITTER IDENTIFICATION

Mark (X) the "Confidential" box next to any subsection you claim as confidential

1a.	Person Submitting Notice (in U.S.)					Confidential
Name of Authorized Official	(first) Qianhu		(last) Yu			
Position	General Manager					
Company	Wansheng Material Science (USA) CO., LTD					☐
Mailing Address (number & street)	1980 Post Oak Blvd, 15th Floor					
City	Houston	State	TX	Postal Code	77056	
email	tsca2013@ws-chem.com					

b.	Agent (if Applicable)					Confidential
Name of Authorized Official	(first)		(last)			
Position						
Company						☐
Mailing Address (number & street)						
City		State		Postal Code		
e-mail		Telephone (include area code)				

c.	Joint Submitter (if applicable)					Confidential
If you are submitting this notice as part of a joint submission, mark (X)					☐	
Name of Authorized Official	(first)		(last)			
Position						
Company						☐
Mailing Address (number & street)						
City		State		Postal Code		
e-mail		Telephone (include area code)				

2.	Technical Contact (in U.S.)					Confidential
Name of Authorized Official	(first) Pamela		(last) Kreis			
Position	Vice President					
Company	Scientific & Regulatory Solutions, LLC					☐
Mailing Address (number & street)	4315 Ericson Road, #405					
City	Ellicott City	State	MD	Postal Code	21043	
e-mail	pam.kreis@verizon.net	Telephone (include area code)		410-480-0955		

			Mark (X) if none	Confidential
3.	If you have had a prenotice communication (PC) concerning this notice and EPA assigned a PC Number to the notice, enter the number.		☒	☐
4.	If you previously submitted an exemption application for the chemical substance covered by this notice, enter the exemption number assigned by EPA. If you previously submitted a PMN for this substance enter the PMN number assigned by EPA (i.e. withdrawn or incomplete).		☒	☐
5.	If you have submitted a notice of Bona fide intent to manufacture or import for the chemical substance covered by this notice, enter the notice number assigned by EPA.		☒	☐

6.	Type of Notice – Mark (X)						
1.	Manufacture Only ☐ Binding Option ☐	2.	Import Only ☒ Binding Option ☐	3.	Both ☐		

Part I – GENERAL INFORMATION -- Continued

Section B – CHEMICAL IDENTITY INFORMATION: You must provide a currently correct Chemical Abstracts (CA) name of the substance based on current CA index nomenclature rules and conventions.

Mark (X) the "Confidential" box next to any item you claim as confidential

Complete either item 1 (Class 1 or 2 substances) or 2 (Polymers) as appropriate. Complete all other items.

If another person will submit chemical identity information for you (for either Item 1 or 2), mark (X) the box at the right. Identify the name, company, and address of that person in a continuation sheet. ☐

1. Class 1 or 2 chemical substances (for definitions of class 1 and class 2 substances, see the Instructions Manual)	Class 1	Class 2	CBI
a. Class of substance - Mark (X)	X	☐	☐

b. Chemical name (Currently correct Chemical Abstracts (CA) Name that is consistent with TSCA Inventory listings for similar substances. For Class 1 substances a CA Index Name must be provided. For Class 2 substances either a CA Index Name or CA Preferred Name must be provided, which ever is appropriate based on current CA index nomenclature rules and conventions). ☐

Phosphoric acid, P,P'-(oxydi-2,1-ethanediyl) P, P, P',P''-tetrakis(2-chloro-1-methylethyl) ester

CAS Registry Number (if a number already exists for the substance)	52186-00-2	

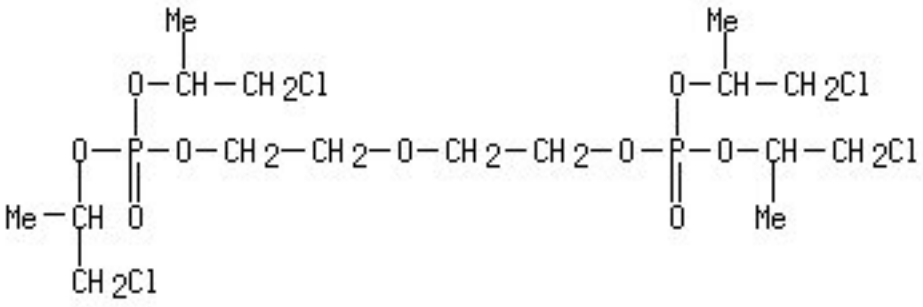
c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice: (check one).

Method 1 (CAS Inventory Expert Service - a copy of the Identification report obtained from the CAS Inventory Expert Services must be submitted as an attachment to this notice) ☐	IES Order Number		**Method 2** (Other Source) X	

Enter Attachment filename for Part I, Section B, 1. c.		☐

d. Molecular formula	C16 H32 Cl4 O9 P2	☐

e. For a class 1 substance, provide a complete and correct chemical structure diagram. For a class 2 substance, provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained. ☐



Enter Attachment filename for Part I, Section B, 1. e.	20121125X1644520.jpg	☐

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For a class 2 substance - (1) List the immediate precursor substances with their respective CAS Registry Numbers. (2) Describe the nature of the reaction or process. (3) Indicate the range of composition and the typical composition (where appropriate).	Confidential

e. (1) List the immediate precursor substance names with their respective CAS Registry Numbers. [X]

XXX

Enter Attachment filename for Part I, Section B, 1. e. (1)		[ ]

e. (2) Describe the nature of the reaction or process. [ ]

Cross linking and blocking.

Enter Attachment filename for Part I, Section B, 1. e. (2)	Production Process Diagram 2-5-13.docx	[ ]

e. (3) Indicate the range of composition and the typical composition (where appropriate). [ ]

63.8%

Enter Attachment filename for Part I, Section B, 1. e. (3)		[ ]

Part I -- GENERAL INFORMATION – Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

2. Polymers (For a definition of polymer, see the Instructions Manual.)	Confidential
a. Indicate the number-average weight of the lowest molecular weight composition of the polymer you intend to manufacture. Indicate maximum weight percent of low molecular weight species (not including residual monomers, reactants, or solvents) below 500 and below 1,000 absolute molecular weight of that composition.	☐

Describe the methods of measurement or the basis for your estimates:

GPC ☐	**Other** (Specify Below) ☐	

Specify Other:

(i) lowest number average molecular weight:	(ii) maximum weight % below 500 molecular weight:	(iii) maximum weight % below 1000 molecular weight:

Enter Attachment filename for Part I, Section B, 2. a. ☐

b. You must make separate confidentiality claims for monomer or other reactant identity, composition information, and residual information. Mark (X) the "Confidential" box next to any item you claim as confidential

(1) - Provide the specific chemical name and CAS Registry Number (if a number exists) of each monomer or other reactant used in the manufacture of the polymer.
(2) - Mark (X) this column if entry in column (1) is confidential.
(3) - Indicate the typical weight percent of each monomer or other reactant in the polymer.
(4) - Choose "yes" from drop down menu if you want a monomer or other reactant used at two weight percent or less to be listed as part of the polymer description on the TSCA Chemical Substance Inventory.
(5) - Mark (X) this column if entries in columns (3) and (4) are confidential.
(6) - Indicate the maximum weight percent of each monomer or other reactant that may be present as a residual in the polymer as manufactured for commercial purposes.
(7) - Mark (X) this column if entry in column (6) is confidential.

Monomer or other reactant specific chemical name (**1**)	CBI (**2**)	Typical composition (**3**)	Include in identity (**4**)	CBI (**5**)	Max residual (**6**)	CBI (**7**)
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						

Mark (X) this box if the data continues on the next page. ☐

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c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice (check one).				CBI
Method 1 (CAS Inventory Expert Service - a copy of the identification report obtained from CAS Inventory Expert Service must be submitted as an attachment to this notice) ☐	IES Order Number		**Method 2** (other source) ☐	
Enter Attachment filename for Part I, Section B, 2. c.				☐

d. The currently correct Chemical Abstracts (CA) name for the polymer that is consistent with TSCA Inventory listings for similar polymers.	☐

CAS Registry Number (if a number already exists for the substance)		

e. Provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained.	☐

Enter Attachment filename for Part I, Section B, 2. e.		☐

Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

3. Impurities
   (a) - Identify each impurity that may be reasonably anticipated to be present in the chemical substance as manufactured for commercial purpose. Provide the CAS Registry Number if available. If there are unidentified impurities, enter "unidentified."
   (b) - Estimate the maximum weight % of each impurity. If there are unidentified impurities, estimate their total weight %.

Impurity (a)	CAS Registry Number (a)	Maximum Percent % (b)	Confi-dential
Poly[oxy[(2-chloro-1-methylethoxy)phosphinlidene]exy-1,2-ethanediyloxy-1,2-ethanediyl], alpha-(2-chloro-1-methylethyl)-omega-[[bis(2-chloro-1-methylethoxy)phosphinyl]oxy]- n=2-4	184530-92-5	31	
tris(2-chloro-1-methylethyl) phosphate	13674-84-5	5	
unknown organic		1.5	

Mark (X) this box if the data continues on the next page. ☐

Enter Attachment filename for Part I, Section B, 3. ☐

4. Synonyms - Enter any chemical synonyms for the new chemical identified in subsection 1 or 2. ☐

Enter Attachment filename for Part I, Section B, 4. ☐

5. Trade identification - List trade names for the new chemical substance identified in subsection 1 or 2.
WSFR-504L ☐

Enter Attachment filename for Part I, Section B, 5. ☐

6. Generic chemical name - If you claim chemical identify as confidential, you must provide a generic name for your substance that reveals the specific chemical identity of the new chemical substance to the maximum extent possible. Refer to the TSCA Chemical Substance Inventory, 1985 Edition, Appendix B for guidance on developing generic names.

Enter Attachment filename for Part I, Section B, 6.

7. Byproducts - Describe any byproducts resulting from the manufacture, processing, use, or disposal of the new chemical substance. Provide the CAS Registry Number if available.

Byproduct (1)	CAS Registry Number (2)	Confi-dential

Mark (X) this box if the data continues on the next page. ☐

Part I -- GENERAL INFORMATION -- Continued

Section C -- PRODUCTION, IMPORT, AND USE INFORMATION:

The information on this page refers to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Mark (X) the "Confidential" box next to any item you claim as confidential.

1. Production volume -- Estimate the **maximum** production volume during the first 12 months of production. Also estimate the maximum production volume for any consecutive 12-month period during the first three years of production. Estimates should be on 100% new chemical substance basis. For a Low Volume Exemption application, if you choose to have your notice reviewed at a lower production volume than 10,000 kg/yr, specify the volume and mark (x) in the binding box. If granted, you are bound to this volume.

Maximum first 12-month production (kg/yr) (100% new chemical substance basis)	Maximum 12-month production (kg/yr) (100% new chemical substance basis)	Confidential	Binding Option Mark (X)
500000	500000	☐	☐

Enter Attachment filename for Part I, Section C, 1. | CBI ☐

2. Use Information -- You must make separate confidentiality claims for the description of the category of use, the percent of production volume devoted to each category, the formulation of the new substance, and other use information. Mark (X) the "Confidential" Box next to any item you claim as confidential.

a. (1) --Describe each intended category of use of the new chemical substance by function and application.
(2) --Mark (X) this column if entry column (1) is confidential business information (CBI).
(3) --Indicate your willingness to have the information provided in column (1) binding.
(4) --Estimate the percent of total production for the first three years devoted to each category of use.
(5) --Mark (X) this column if entry in column (4) is confidential business information (CBI).
(6) --Estimate the percent of the new substance as formulated in mixtures, suspensions, emulsions, solutions, or gels as manufactured for commercial purposes at sites under your control associated with each category of use.
(7) --Mark (X) this column if entry in column (6) is confidential business information (CBI).
(8) --Indicate % of product volume expected for the listed "use" sectors. Mark more than one box if appropriate. Mark (X) to indicate your willingness to have the use type provided in (8) binding.
(9) --Mark (X) this column if entry(ies) in column (8) is (are) confidential business information (CBI).

Category of use (**1**) (by function and application i.e. a dispersive dye for finishing polyester fibers)	CBI (**2**)	Binding Option Mark (X) (**3**)	Production % (**4**)	CBI (**5**)	% in Formulation (**6**)	CBI (**7**)	% of substance expected per use (**8**)					CBI (**9**)
							Site-limited	Consumer*	Industrial	Commercial	Binding Option	
flame retardant			100		64		0	0	100	0		

* If you have identified a "consumer" use, please provide on a continuation sheet a detailed description of the use(s) of this chemical substance in consumer products. In addition include estimates of the concentration of the new chemical substance as expected in consumer products and describe the chemical reactions by which this substance loses its identity in the consumer product.

Mark (X) this box if the data continues on the next page. ☐

b. Generic use description — If you claim any category of use description in subsection 2a as confidential, enter a generic description of that category. Read the Instruction Manual for examples of generic use descriptions.

Enter Attachment filename for Part I, Section C, 2. b. | CBI ☐

3. Hazard Information -- Include in the notice a copy of reasonable facsimile of any hazard warning statement, label, material safety data sheet, or other information which will be provided to any person who is reasonably likely to be exposed to this substance regarding protective equipment or practices for the safe handing, transport, use, or disposal of the new substance. List in part III hazard information you include.

		Binding Option Mark (X)
Mark (X) this box if you attach hazard information.	☒	☐

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER

Mark (X) the "Confidential" box next to any item you claim as confidential

The information on pages 8 and 8a refer to consolidated chemical number(s): ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6**

Complete section A for each type of manufacture, processing, or use operation involving the new chemical substance at industrial sites you control. Importers do not have to complete this section for operations outside the U.S.; however, you may still have reporting requirements if there are further industrial processing or use operations after import. You must describe these operations. See instructions manual

1. Operation description
   a. Identity -- Enter the identity of the site at which the operation will occur.

Confi-dential

Name	Wangsheng Material Science		
Site address (number and street)	1980 Post Oak Blvd., 15th Floor		
City	Houston	County	Harris
State	TX	ZIP code	77056

If the same operation will occur at more than one site, enter the number of sites. Identify the additional sites on a continuation sheet, and if any of the sites have significantly different production rates or operations, include all the information requested in this section for those sites as attachments. → 1 ☐

Mark (X) this box if the data continues on the next page. ☐

b. Type -- Mark (X) Manufacturing ☐ Processing ☐ Use ☐ ☐

c. Amount and Duration -- Complete 1 or 2 as appropriate

Confi-dential

1. Batch	Maximum kg/batch (100% new chemical substance)	Hours/batch	Batches/year	☐
2. Continuous	Maximum kg/day (100% new chemical substance)	Hours/day	Days/year	☐

d. Process description — Mark (X) to indicate your willingness to have your process description binding. → ☐

(1) Diagram the major unit operation steps and chemical conversions. Include interim storage and transport containers (specify- e.g. 5 gallon pails, 55 gallon drum, rail car, tank truck, etc.).
(2) Provide the identity, the approximate weight (by kg/day or kg/batch on a 100% new chemical substance basis), and entry point of all starting materials and feedstocks (including reactants, solvents, catalysts, etc.), and of all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch.).
(3) Identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance. If releasing to two media at the same step, assign a second release number for the second medium.

☐

Product containing the new chemical substance will be imported and stored at a warehouse designated by Wansheng Material Science or shipped directly to customers.

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Diagram of the major unit operation steps.	Confidential ☐

Enter Attachment filename for Part II, Section A, 1. d.	☐

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Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER -- Continued

The information on pages 9 and 9a refer to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

2. Occupational Exposure -- You must make separate confidentiality claims for the description of worker activity, physical form of the new chemical substance, number of workers exposed, and duration of activity. Mark (X) the "Confidential" box next to any item you claim as confidential.

(1) -- Describe the activities (i.e. bag dumping, tote filling, unloading drums, sampling, cleaning, etc.) in which workers may be exposed to the substance.
(2) -- Mark (X) this column if entry in column (1) is confidential business information (CBI).
(3) -- Describe any protective equipment and engineering controls used to protect workers.
(4) and (6) -- Indicate your willingness to have the information provided in column (3) or (5) binding.
(5) -- Indicate the physical form(s) of the new chemical substance (e.g., solid: crystal, granule, powder, or dust) and % new chemical substance (if part of a mixture) at the time of exposure.
(7) -- Mark (X) this column if entries in columns (3) and (5) are confidential business information (CBI).
(8) -- Estimate the maximum number of workers involved in each activity for all sites combined.
(9) -- Mark (X) this column if entry in column (8) is confidential business information (CBI).
(10) and (11) -- Estimate the maximum duration of the activity for any worker in hours per day and days per year.
(12) -- Mark (X) this column if entries in columns (10) and (11) are confidential business information (CBI).

Worker activity (i.e., bag dumping, filling drums) (1)	CBI (2)	Protective Equipment/ Engineering Controls (3)	Binding Option Mark (X) (4)	Physical form(s) & % new substance (5)	Binding Option Mark (X) (6)	CBI (7)	# of Workers Exposed (8)	CBI (9)	Maximum Duration		CBI (12)
									Hrs/Day (10)	Days/Yr (11)	

Mark (X) this box if the data continues on the next page. ☐

Enter Attachment filename for Part II, Section A on the bottom of page 9a. ☐

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3. Environmental Release and Disposal -- You must make separate confidentiality claims for the release number and the amount of the new chemical substance released and other release and disposal information. Mark (X) the "Confidential" box next to each item you claim as confidential.

(1) -- Enter the number of each release point identified in the process description, part II, section A, subsection 1d(3).
(2) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology (in kg/day or kg/batch).
(3) -- Mark (X) this column if entries in columns (1) and (2) are confidential business information (CBI).
(4) -- Identify the media (stack air, fugitive air (optional-see Instruction Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify)) to which the new substance will be released from that release point.
(5) -- a. Describe control technology, if any, and control efficiency that will be used to limit the release of the new substance to the environment. For releases disposed of on land, characterize the disposal method and state whether it is approved for disposal of RCRA hazardous waste. On a continuation sheet, for each site describe any additional disposal methods that will be used and whether the waste is subject to secondary or tertiary on-site treatment. b. Estimate the amount released to the environment after control technology (in kg/day).
(6) -- Mark (X) this column if entries in columns (4) and (5) are confidential business information (CBI).
(7) -- Identify the destination(s) of releases to water. Please supply NPDES (National Pollutant Discharge Elimination System) numbers for direct discharges or NPDES numbers of the POTW (Publicly Owned Treatment Works). Mark (X) if the POTW name or NPDES # is confidential business information (CBI).

Release Number	Amount of New Substance Released		CBI	Medium of release e.g. Stack air	Control technology and efficiency (you may wish to optionally attach efficiency data)			CBI
(1)	(2a)	(2b)	(3)	(4)	(5a)	Binding Mark (X)	(5b)	(6)
Mark (X) this box if the data continues on the next page.							☐	

(7) Mark (X) the destination(s) of releases to water.		NPDES#	CBI
☐ POTW--provide name(s)			☐
☐ Navigable waterway- - provide name(s)			☐
☐ Other--Specify			☐
Enter Attachment filename for Part II, Section A.			☐

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE – Continued

Section B -- INDUSTRIAL SITES CONTROLLED BY OTHERS

The information on pages 10 and 10a refer to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Complete section B for typical processing or use operations involving the new chemical substance at sites you do not control. Importers do not have to complete this section for operations outside the U.S.; however, you must report any processing or use activities after import. See the Instructions Manual. *Complete a separate section B for each type of processing, or use operation involving the new chemical substance*. If the same operation is performed at more than one site describe the typical operation common to these sites. Identify additional sites on a continuation sheet.

1(a). Operation Description -- To claim information in this section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

(1) -- Diagram the major unit operation steps and chemical conversions, including interim storage and transport containers (specify - e.g. 5 gallon pails, 55 gallon drums, rail cars, tank trucks, etc). On the diagram, identify by letter and briefly describe each worker activity.

(2) -- Either in the diagram or in the text field 1(b) below, provide the identity, the approximate weight (by kg/day or kg/batch, on an 100% new chemical substance basis), and entry point of all feedstocks (including reactants, solvents and catalysts, etc) and all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch).

(3) -- Either in the diagram or in the text field 1(b) below, identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance.

(4) -- Please enter the # of sites (remember to identify the locations of these sites on a continuation sheet):

	Number of Sites	5	Confidential ☐

1(b). (Optional) This space is for a text description to clarify the diagram above. Confidential ☐

The new chemical substance (NCS) is used as a flame retardant in polyurethane sponge or flexible foam manufacture. The NCS is added at a rate of approximately 10-20 kg/100 kg of polyether. The transfer of the NCS from the 250 kg metal drums will be under controlled conditions where the NCS is carefully weighed and added to the reactor. Operators will wear safety glasses, gloves and protective clothing. Empty drums for the NCS will be sent to landfill for disposal. Equipment will be cleaned as needed and waste water will be sent for waste water treatment. The NCS is expected to be incorporated into the sponge/foam making exposure to humans minimal and release to the environment in downstream uses extremely low.

Enter Attachment filename for Part II, Section B on the bottom of page 10a.		☐

Continuation Sheet

ID	P10SB1(a)(4)1	Field	Part II, Section B, 1(a)(4). Operation Site Locations

Not identified

PMN Page 10a

2. Worker Exposure/Environmental Release

(1) -- From the diagram above, provide the letter for each worker activity. Complete 2-8 for each worker activity described.
(2) -- Estimate the number of workers exposed for all sites combined.
(4) -- Estimate the typical duration of exposure per worker in (a) hours per day and (b) days per year.
(6) -- Describe physical form of exposure and % new chemical substance (if in mixture), and any protective equipment and engineering controls, if any, used to protect workers.
(7) -- Estimate the percent of the new substance as formulated when packaged or used as a final product.
(9) -- From the process diagram above, enter the number of each release point. Complete 9-13 for each release point identified.
(10) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology to the environment (in kg/day or kg/batch).
(12) -- Describe media of release i.e. stack air, fugitive air (optional-see Instructions Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify) and control technology, if any, that will be used to limit the release of the new substance to the environment.
(14) -- Identify byproducts which may result from the operation.
(3), (5), (8), (11), (13) and (15) -- Mark (X) this column if any of the proceeding entries are confidential business information (CBI).

Letter of Activity	# of Workers Exposed	CBI	Duration of Exposure		CBI	Protective Equip./Engineering Controls/Physical Form	% new substance	% in Formulation	CBI
(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(6)	(7)	(8)

Release Number	Amount of New Substance Released		CBI	Media of Release & Control Technology	CBI
(9)	(10a)	(10b)	(11)	(12)	(13)

Mark (X) this box if the data continues on the next page. ☐

(14) Byproducts: | **(15) CBI** ☐

Enter Attachment filename for Part II, Section B. ☐

OPTIONAL POLLUTION PREVENTION INFORMATION

To claim information in the following section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

In this section you may provide information not reported elsewhere in this form regarding your efforts to reduce or minimize potential risks associated with activities surrounding manufacturing, processing, use and disposal of the PMN substance. Please include new information pertinent to pollution prevention, including source reduction, recycling activities and safer processes or products available due to the new chemical substance. Source reduction includes the reduction in the amount or toxicity of chemical wastes by technological modification, process and procedure modification, product reformulation, and/or raw materials substitution. Recycling refers to the reclamation of useful chemical components from wastes that would otherwise be treated or released as air emissions or water discharges, or land disposal. Quantitative or qualitative descriptions of pollution prevention, source reduction and recycling should emphasize potential risk reduction in addition to compliance with existing regulatory requirements. The EPA is interested in the information to assess overall net reductions in toxicity or environmental releases and exposures, not the shifting of risks to other media (e.g., air to water) or nonenvironmental areas (e.g., occupational or consumer exposure). To the extent known, information about the technology being replaced will assist EPA in its relative risk determination. In addition, information on the relative cost or performance characteristics of the PMN substance to potential alternatives may be provided.

Describe the expected net benefits, such as

(1) an overall reduction in risk to human health or the environment;
(2) a reduction in the generation of waste materials through recycling, source reduction or other means;
(3) a reduction in the use of hazardous starting materials, reagents, or feedstocks;
(4) a reduction in potential toxicity, human exposure and/or environmental release; or
(5) the extent to which the new chemical substance may be a substitute for an existing substance that poses a greater overall risk to human health or the environment.

Information provided in this section will be taken into consideration during the review of this substance. See PMN Instructions Manual and Pollution Prevention Guidance manual for guidance and examples.

Enter Attachment filename for Pollution Prevention Page 11.		☐

Part III -- LIST OF ATTACHMENTS

Attach continuation sheets for sections of the form, test data and other data (including physical/chemical properties and structure/activity information), and optional information after this page. Clearly identify the attachment and the section of the form to which it relates, if appropriate. Number consecutively the pages of any paper attachments. In the Number of Pages column below, enter the inclusive page numbers of each attachment for paper submissions or enter the total number of pages for each attachment for electronic submissions. Electronic attachments can be identified by filename.
Mark (X) the "Confidential" box next to any attachment name or filename you claim as confidential. Read the Instructions Manual for guidance on how to claim any information in an attachment as confidential. You must include with the sanitized copy of the notice form a sanitized version of any attachment in which you claim information as confidential.

#	Attachment Name	Attachment Filename	Number of Pages	Associated PMN Section Number	CBI
001	Structure diagram	20121125X1644520.jpg	0	Pt.I, Sec.B, 1e.	
002	Reaction scheme	Production Process Diagram 2-5-13.docx	1	Pt.I, Sec.B, 1e(2).	
003	Microorganism Decomposition Test	205003 Biodegradability Test.pdf	14		
004	Biaccumulation in Carb	505030 Bio-accumulation Test.pdf	29		
005	Vapor Pressure	1512110063 - vapor pressure.pdf	7	Worksheet: Vapor Pressure	
006	Density of liquid	1512110064 - density liquid.pdf	6	Worksheet: Density	
007	pH measurement	1512110065 - pH.pdf	6		
008	Boiling point measurement	1512110066 - boiling point.pdf	6	Worksheet: Boiling / sublimation temp	
009	Flash point determination	1512110067 - flash point.pdf	6	Worksheet: Flammability	
010	Auto ignition determination	1512110068 - auto ignition.pdf	6	Worksheet: Other Property (Auto Ignition)	
011	Determination of oxidizing properties	1512110069 - oxidization test.pdf	6		
012	Flammable gases with water determination	1512110070 - flammable gases	7		
013	Ames Test Report	504L Ames test report.pdf	25		
014	MSDS	WSFR-504L MSDS EN v4.3.pdf	5		

Mark (X) this box if the data continues on the next page. ☐

PMN Page 13

PHYSICAL AND CHEMICAL PROPERTIES WORKSHEET

The information on this page refers to chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

To assist EPA's review of physical and chemical properties data, please complete the following worksheet for data you provide and include it in the notice. Identify the property measured, the value of the property, the units in which the property is measured (as necessary), and whether or not the property is claimed as confidential. Give the attachment number (found on page 12) in column (b). The physical state of the neat substance should be provided. These measured properties should be for the neat (100% pure) chemical substance. Properties that are measured for mixtures or formulations should be so noted (% PMN substance in __). You are not required to submit this worksheet; however, EPA strongly recommends that you do so, as it will simplify the review and ensure that confidential information is properly protected. You should submit this worksheet as a supplement to your submission of test data. This worksheet is not a substitute for submission of test data.

Property (a)		Unit	Mark X if Provided	Attachment Number (b)	Value (c)			Measured or Estimate (M or E)	CBI Mark (X) (d)
					(solid)	(liquid)	(gas)		
Physical state of neat substance			☐		☐	☒	☐	Estimate	
Vapor Pressure @ Temperature	20	°C	☒	005	0.2250		Torr	Measured	
Density/relative density			☒	006	1.328		g/cm3	Measured	
Solubility			☐				g/L		
@ Temperature		°C							
Solvent									
Solubility in Water @ Temperature		°C	☐				g/L		
Melting Temperature			☐				°C		
Boiling / Sublimation temperature @		Torr	☒	008	> 260		°C	Measured	
Spectra			☐						
Dissociation constant			☐						
Octanol / water partition coefficient			☐						
Henry's Law constant			☐						
Volatilization from water			☐						
Volatilization from soil			☐						
pH@ concentration	50 g/L		☒	007	5.1			Measured	
Flammability			☒	009	> 110			Measured	
Explodability			☐						
Adsorption / Coefficient			☐						
Particle Size Distribution			☐						
Other – Specify	Auto Ignition		☒	010	463°C			Measured	

ATTACHMENT HEADER SHEET

Attachment Number 001

Attachment Name

Structure diagram

Associated PMN Section Number

Pt.I, Sec.B, 1e.

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 002

Attachment Name

Reaction scheme

Associated PMN Section Number

Pt.I, Sec.B, 1e(2).

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 003

Attachment Name

Microorganism Decomposition Test

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 004

Attachment Name

Biaccumulation in Carb

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 005

Attachment Name

Vapor Pressure

Associated PMN Section Number

Worksheet: Vapor Pressure

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 006

Attachment Name

Density of liquid

Associated PMN Section Number

Worksheet: Density

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 007

Attachment Name

pH measurement

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 008

Attachment Name

Boiling point measurement

Associated PMN Section Number

Worksheet: Boiling / sublimation temp

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 009

Attachment Name

Flash point determination

Associated PMN Section Number

Worksheet: Flammability

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 010

Attachment Name

Auto ignition determination

Associated PMN Section Number

Worksheet: Other Property (Auto Ignition)

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 011

Attachment Name

Determination of oxidizing properties

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 012

Attachment Name

Flammable gases with water determination

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 013

Attachment Name

Ames Test Report

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

ATTACHMENT HEADER SHEET

Attachment Number 014

Attachment Name

MSDS

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

XWMS130306290290563

Focus Report

New Chemicals Program

PMN Number: **P-13-0331**

Focus Date:	05/12/2013 11:00:00 PM	Report Status:	Completed
Consolidated Set:			
Focus Chair:	Rose Allison	Contractor:	Jean Quenneville

I. Notice Information

Submitter:	Wansheng Material Science (USA) CO., LTD	CAS Number:	1427557-60-5
Chemical Name:	Phosphoric trichloride, polymer with 2,2'-oxybis[ethanol], reaction products with propylene oxide		
Use:	Flame retardant in polyurethane sponge or [redacted]. %P for typical component, C16 H32 Cl4 O9 P2, is 10.83%; %phosphate is 34%. All analogs are flame retardants for [redacted]		
Other Uses:	No other uses found for the PMN material.		
PV-Max:	500,000 Kg/yr		
Manufacture:		Import:	X

II. SAT Results

(1) **Health Rating:** 1-2 **Eco Rating:** 3 **Comments:** ;

Occupational: 2-3B **Non-Occupational:** 3 **Environmental:** 3

(1) **PBT:** 2 1 1 **Comments:**

III. OTHER FACTORS

Categories:

Health Chemical Category:		Ecotox SAR and Category:	organophosphates; Phosphates inorganic

Related Cases/Regulatory History:

Health related Cases:

Ecotox Related Cases: Analogs: [redacted].

Regulatory History: [redacted]-WITHDRAWN/FACE 5E EXPOSURE-BASED
[redacted]-REG 5E CONS./TESTING TRIGGER
[redacted]-WITHDRAWN - OTHER

MSDS/Label Information:

MSDS:	Yes	Label:	No
General Equipment:	Neoprene gloves, chemical safety goggles, protective impervious clothing, safety shower, eye bath, ventilation.		
Respirator:	In case of insufficient ventilation wear suitable respiratory equipment		
Health Effects:	The product is not classified as harmful by eye/skin contact, or by ingestion and inhalation.		
TLV/PEL (PMN or raw material):	- No information provided.		

Exposure Based Information:

Exposure Based Review:	Y	Exposure Based Review (Health):	N
Exposure Based Review (Eco):	Y	Exposure Based (Occupational):	No
Exposure Based Review (Non Occupatuional):	N	Exposure Based (Environmental):	

Exposure Parameter	Exposure-Based	Persistent/Bioaccum	Exposure Value
Surface DW:		Yes	
Fish Ingestion:			

Ground DW:		0.0027
Inhalation:		0.00232
Water Releases:		0
Total Releases:	Yes	25000
Consumer Exposure:	Yes	25123.455

IV. Summary of SAT Assessment

Fate:

Fate Summary:

P-13-0331
FATE: Estimations for typical n=1 MW 572 C16H32Cl4O9P2
Liquid with MP < 25 C (E)
log Kow = 2.83 (E)
S = 86.2 mg/L at 25 C (E), 50 g/L at 25 °C (M for mixture)
VP < 1.0E-6 torr at 25 C (E), 0.38 torr at 25 °C (NOMO5 for mixture)
BP = Dec. >260 C (M)
BP = 197 C (NOMO5) based on 20 C @ 0.23 mm Hg (M for mixture)
H < 1.00E-8 (E)
log Koc = 5.81 (E)
log Fish BCF = 0.71 (E)
log Fish BAF = 1.03 (E)
POTW removal (%) = 0 via possible partial biodeg; OECD 301C(MITI): 16%(BOD), 6%(TOC), 10%(HPLC)/28d.
Time for complete ultimate aerobic biodeg = mo
Sorption to soils/sediments = moderate
PBT Potential: P2B1
*CEB FATE: Migration to ground water = moderate

Health:

Health Summary:

Absorption of the low molecular weight fraction (90.0% < 1000, 0% , 500) is poor all routes, based on physical/chemical properties. The PMN substance is a potential alkylating agent. There is concern for mutagenicity, as well as uncertain concerns for skin and lung sensitization, developmental, reproductive, liver, and kidney toxicities, irritation, and oncogenicity, based on the alkylation potential.

Ecotox:

Ecotox Values:

Fish 96-h LC50:	>100(P)
Daphnid 48-h LC50:	>100(P)
Green algal 96-h EC50:	0.088(P)
Fish Chronic Value:	>10(P)
Daphnid ChV:	>10(P)
Algal ChV:	0.029(P)

Ecotox values comments:

Predictions are based on SARs for phosphates; SAR chemical class = phosphate [redacted]e-34% PO4; MW 572 with 90% < 1000 and 0% < 500; S = 50 g/L (P); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <180.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Ecotox Factors:

Assessment Factor: 10
Concern Concentration: 3
- Chronic Value

V. Summary of Exposures/Releases

Engineering Summary: P-13-0331

Exposures/Releases	Release	Release	Release
Scenario	**Use: Polyurethane Foam Production**	**Use: Polyurethane Foam Production**	**Use: Polyurethane Foam Production**
Sites	**5**	**5**	**5**
Media	**Air**	**Water or Incineration or Landfill**	**Air**
Descriptor A	Typical	High End	Output 2
Quantity A (Release = kg/site/day; Exposure = mg/day)	2.3E-3	1.2E+1	6.4E-5
Frequency A (day/year)	250	250	250
Descriptor B	Worst Case		
Quantity B (Release = kg/site/day; Exposure = mg/day)	4.7E-3		
Frequency B (day/year)	250		
From	Unloading Liquid Raw Material from Drums	Cleaning Liquid Residuals from Drums Used to Transport the Raw Material	Cleaning Liquid Residuals from Drums Used to Transport the Raw Material
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Release	Release	Exposure
Scenario	**Use: Polyurethane Foam Production**	**Use: Polyurethane Foam Production**	**Use: Polyurethane Foam Production**
Sites	**5**	**5**	**5**
Media	**Water or Incineration or Landfill**	**Air**	**Dermal**
Descriptor A	Conservative	Output 2	High End
Quantity A (Release = kg/site/day; Exposure = mg/day)	8.0E+0	9.4E-2	1.8E+3
Frequency A (day/year)	250	250	250
Descriptor B			
Quantity B (Release = kg/site/day; Exposure = mg/day)			
Frequency B (day/year)			
From	Equipment Cleaning Losses of Liquids from Multiple Vessels	Equipment Cleaning Losses of Liquids from Multiple Vessels	Unloading Liquid Raw Material from Drums
Workers			50
Exposure Type			Liquid

V. Summary of Exposures/Releases

Engineering Summary: P-13-0331

Exposures/Releases	**Exposure**		
Scenario	**Use: Polyurethane Foam Production**		
Sites	**5**		
Media	**Inhalation**		
Descriptor A	Worst Case		
Quantity A (Release = kg/site/day; Exposure = mg/day)	6.7E+1		
Frequency A (day/year)	250		
Descriptor B	Typical		
Quantity B (Release = kg/site/day; Exposure = mg/day)	1.1E+0		
Frequency B (day/year)	250		
From	Unloading Liquid Raw Material from Drums		
Workers			
Exposure Type	Vapor		

VI. Focus Decision and Rationale

Regulatory Actions

Regulatory Decision: PMN Ban Pending Upfront Testing Decision Date: 05/12/2013
Type of Decision:

Rationale: P-13-0331 will be regulated under the TSCA 5(e) category (phosphates) Ban Pending-Up Front Testing under the risk and exposure based authority for acute and chronic ecotoxicity hazard concerns and exposure-based health hazard concerns. Human health hazard concerns were low-moderate for dermal and inhalation exposures. The MSDS must be amended to remove all qualifying language for respirators and add a NIOSH-certified vapor respirator with a black cartridge. Ecotoxicity hazard concerns were high based on SARs predictions for phosphates. Chronic risks to the environment were due to releases to water where the chronic COC of 3 ppb was exceeded 250/250 days (SWC 2,577.32 ppb) during use operations. Acute risks to the environment were due to releases to water where the acute COC of 22 ppb was exceeded 250/250 days (SWC 2,577.32 ppb) during use operations. The required ecotoxicity testing will be the acute base set: the Aquatic invertebrate acute toxicity test (OPPTS Test Guidelines 850.1010), Fish acute toxicity test (OPPTS Test Guidelines 850.1075), and the Algal toxicity test (OCSPP Test Guidelines 850.4500). The required fate testing will be the Anaerobic biodegradation of organic chemicals in digested sludge (OECD 311). The required human health testing will be the base set which includes: Acute toxicity testing (OPPTS Test Guidelines 870.1000), Repeated dose 28-day oral toxicity study in rodents (OPPTS Test Guidelines 870.3050), Bacterial reverse mutation test (OPPTS Test Guidelines 870.5100), and Mammalian erythrocyte micronucleus test (OPPTS Test Guidelines 370.5395). No CEB exposure-based criteria were met. The following EAB exposure-based criteria were met: Surface Water Release After Treatment (2.50+04 kg/yr) and Total Release After Treatment (2.51E+04 kg/yr).

COC: Chronic – 3 ppb, Acute – 22 ppb

Summary of Releases and Exposures

Use
5 sites, 250 days/year, 50 workers
Inhalation (Vapor): Typical: 1.1E+0 mg/day, Worst Case: 6.7E+1 mg/day
Dermal: 1.8E+3 mg/day (100% Liquid)

Releases to Water: 1.2E+1 kg/site-day over 250 days/yr
Or Incineration or Landfill
Releases to Water: 8.0E+0 kg/site-day over 250 days/yr
Or Incineration or Landfill
Releases to Air: Typical: 2.3E-3 kg/site-day over 250 days/yr, Worst Case: 4.7E-3 kg/site-day over 250 days/yr
Releases to Air: 6.4E-5 kg/site-day over 250 days/yr
Releases to Air: 9.4E-2 kg/site-day over 250 days/yr

Fate Releases to Water (Removal Rate 0%):
SWC: 2577.32 ppb
DW: LADD: 2.70E-03 mg/kg/day; ADR: 0.13 mg/kg/day
FI: LADD: 5.94E-05 mg/kg/day, ADR: 4.66E-03 mg/kg/day
>COC (3 ppb) 250/250 release days

CCD Disposition:

P-13-0331 was placed into standard review for health based on the similarity to previous PMN analogs where the health risk was reviewed and substantiated. The analogues were [redacted] and [redacted] The PMN substance should be reviewed for all relevant risk scenarios including consumer risk for flame retardants.

P2 Rec Comments:

Testing:

Final Recommended:

Health:

Eco:

Fate:

Other:

VII. CCD Disposition/DD

CCD: Standard Review

DD:

03/17/2015 10:09:58 AM

SAT Report

PMN Number: **P-13-0331**
SAT Date: **5/7/2013**
Print Date: **3/17/2015**

Related cases: [redacted]

Health related cases:
Ecotox related cases: Analogs: [redacted]

Concern levels:

Type of Concern:	Health	Eco	Comments
Level of Concern:	1-2	3	

Persistence	Bioaccum	Toxicity	Comments
2	1	1	

Exposure Based Review:

Health: No
Ecotox: Yes

Routes of exposure:

Health: Dermal Drinking Water Inhalation
Ecotox: All releases to water
Fate: ;

Keywords:

Keywords:

MUTA
UNCERT SENS-S,L
UNCERT REPRO
UNCERT DEV
UNCERT LIVER
UNCERT KIDNEY
UNCERT IRR
UNCERT ONCO
AQUATOX-A,C

Summary of Assessment:

Fate:

Fate Summary: P-13-0331
FATE: Estimations for typical n=1 MW 572 C16H32Cl4O9P2

Liquid with MP < 25 C (E)
log Kow = 2.83 (E)
S = 86.2 mg/L at 25 C (E), 50 g/L at 25 °C (M for mixture)
VP < 1.0E-6 torr at 25 C (E), 0.38 torr at 25 °C (NOMO5 for mixture)
BP = Dec. >260 C (M)
BP = 197 C (NOMO5) based on 20 C @ 0.23 mm Hg (M for mixture)
H < 1.00E-8 (E)
log Koc = 5.81 (E)
log Fish BCF = 0.71 (E)
log Fish BAF = 1.03 (E)
POTW removal (%) = 0 via possible partial biodeg; OECD 301C(MITI): 16%(BOD), 6%(TOC), 10%(HPLC)/28d.
Time for complete ultimate aerobic biodeg = mo
Sorption to soils/sediments = moderate
PBT Potential: P2B1
*CEB FATE: Migration to ground water = moderate

Health:

Health Summary: Absorption of the low molecular weight fraction (90.0% < 1000, 0% , 500) is poor all routes, based on physical/chemical properties. The PMN substance is a potential alkylating agent. There is concern for mutagenicity, as well as uncertain concerns for skin and lung sensitization, developmental, reproductive, liver, and kidney toxicities, irritation, and oncogenicity, based on the alkylation potential.

Ecotox:

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	**96-h**	**LC50**	>100		
daphnid	**48-h**	**LC50**	>100		
green algal	**96-h**	**EC50**	0.088		
fish	**_**	**chronic value**	>10		
daphnid	**_**	**chronic value**	>10		
algal	**_**	**chronic value**	0.029		
Sewage Sludge	**3-h**	**EC50**	**_**		
Sewage Sludge	**_**	**Chronic Value**	**_**		

Ecotox Values Comments: Predictions are based on SARs for phosphates; SAR chemical class = phosphate [redacted]-34% PO4; MW 572 with 90% < 1000 and 0% < 500; S = 50 g/L (P); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <180.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb)	3	
SARs	organophosphates	
SAR Class	phosphate-organic-34% PO4	
Ecotox Category	Phosphates inorganic	

Ecotox Factors Comments:

SAT Chair: J. Kwiat

STANDARD REVIEW ENGINEERING REPORT [redacted]

P-13-0331
Standard Review Draft 6/4/2013 11:00:00 PM

ENGINEER: Arnold \ AH
PV (kg/yr): 500000 Import only

Revision Notes/Assessment Overview:

SUBMITTER: Wansheng Material Science (USA) CO., LTD (submitter)

USE: Flame retardant in polyurethane sponge or flexible foam. %P for typical component, C16 H32 Cl4 O9 P2, is 10.83%; %phosphate is 34%. All analogs are flame retardants for polyurethane foam.

OTHER USES: No other uses found for the PMN material.

MSDS: Yes **LABEL**: No

Gen Eqpt: Neoprene gloves, chemical safety goggles, protective impervious clothing, safety shower, eye bath, ventilation.
Respirator: In case of insufficient ventilation wear suitable respiratory equipment
Health Effects: The product is not classified as harmful by eye/skin contact, or by ingestion and inhalation.
TLV/PEL: - No information provided.

CRSS: (5/5/2013 11:00:00 PM):
Chemical Name: Phosphoric trichloride, polymer with 2,2'-oxybis[ethanol], reaction products with propylene oxide
S-H2O: 50 g/L @
VP: 3.8E-1 torr @
MW: 572 0.0%<500 90.0%<1000
Physical State and Misc CRSS Info:
Neat: Liquid **Mfg:** NK - Imported
Proc/Form: Solution, 10-20 kg PMN material per 100 kg of [redacted] **End Use:** PMN material [redacted]. An updated name, 1H NMR, IR, and MALDI mass spectra were provided in an amendment to the submission. Submitted data: A MALDI mass spectrum is provided with a predominant m/z of 573 = M + 1, giving MW = 572 (corresponds to C16 H32 Cl4 O9 P2), no data over 700 m/z shown; a second peak at m/z 495 corresponds to M - 78 + 1 where 78 is C3H7Cl indicating degradation within the mass spec. Therefore, no significant portion of the PMN material has a MW less than 500. For the structure as drawn, the submitter states that n=1 60-70% (MW 572), n=2 30-40% (MW 816, C23 H46 Cl5 O14 P3), and n=3 0-10% (MW 1061, C30 H60 Cl6 O19 P4). Therefore, approximately 10% of the material may have a MW greater than 1000. Additional data on page 6 of this report.

Consumer Use: No

SAT (concerns): (5/6/2013 11:00:00 PM):

Migration to groundwater: Moderate
PBT rating: P2 **B**1 **T**1
Health: 1-2, Dermal, Drinking Water, Inhalation
Eco: 3, Water (All releases to water with a CC = 3ppb), XB Testing (Testing desired)

OCCUPATIONAL EXPOSURE RATING: 2-3B

NOTES & KEY ASSUMPTIONS:

Generated by the 06/07/2005 version of ChemSTEER. This is an exposure-based case; no exposure critera were met. SAT indicates XB testing desired for Eco. //// PMN is imported for use as a flame retardant in polyurethane sponge or flexible foam production. PMN is a semi-volatile liquid; therefore, some fugitive losses to air are expected. The 1991 Polyurethane Foam Blowing Generic Scenario (GS) is reviewed in preparing this IRER. //// There are no same submitter past cases. The following polyurethane foam past cases from different submitter are referenced: [redacted] (catalyst), [redacted] (flame retardant), and [redacted] (flame retardant). [redacted] and [redacted] were imported for direct use in polyurethane foam production (consistent with this IRER), whereas [redacted] was manufactured domestically. For USE, all past cases assessed container and equipment residue losses to uncertain media (consistent with this IRER). In addition, [redacted] is a semi-volatile liquid, and this case assessed fugitive losses to air using std. models (consistent with this IRER) and air releases from ventilation system using submitter data. All past cases assessed dermal exposure to liquid; [redacted] also assessed inhalation exposure to vapor (consistent with this IRER). [redacted] indicated negligible inhalation exposure due to the use of engineering controls (closed loop foam metering) and PPE.

POLLUTION PREVENTION CONSIDERATIONS:
No Pollution Prevention information provided by the submitter.

P2 REC:

EXPOSURE-BASED REVIEW: Yes **(0 criteria met)**

1) # of workers exposed: 50 **>1000?** No
2) >100 workers with > 10 mg/day inhalation exposure: No
3) (a) >100 workers w/1-10 mg/day inh. exp. & >100 days/yr: No
(b) Routine Dermal Cont: > 250 workers & > 100 days/yr: No

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Use: Polyurethane Foam Production

Number of Sites/Location: 1 submitter site(s)
unknown site(s)
Basis: Submission estimates 5 customer sites (unidentified) but provides no further information on process throughput. CEB assumes 250 day/yr operation per 1991 Polyurethane Foam Blowing GS and calculates a use rate of 400 kg PMN/site-day (neat). Per submission, 10 - 20kg of PMN is mixed with 100 kg of polyether (conc. <20% by wt).
Process Description: PMN imported in 250kg metal drums (liquid, assumed 100%) --> warehouse, controlled by submitter --> customer sites --> weighed and added to reactor under controlled conditions --> mixed with [redacted] (liquid, [redacted]% by wt) --> [redacted]) --> PMN [redacted] (submission/CRSS)

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium. Submission does not provide release estimates for the customer operation. The 1991 Polyurethane Foam Blowing GS recommends the use of CEB models to assess cleaning losses and shipping container residues. Releases assessed to uncertain media as operation occurs at unidentified sites. Note this PMN is a semi-volatile liquid (not high volatile); therefore, data for CFC/CFC substitutes in the GS are not applicable.

Air
Typical: 2.3E-3 kg/site-day over 250 day/yr from 5 sites or 2.9E+0 kg/yr
Worst Case: 4.7E-3 kg/site-day over 250 day/yr from 5 sites or kg/yr
to: Air
from: Unloading Liquid Raw Material from Drums
basis: EPA/OAQPS AP-42 Loading Model.

Water or Incineration or Landfill
High End: 1.2E+1 kg/site-day over 250 day/yr from 5 sites or 1.5E+4 kg/yr
to: uncertain
from: Cleaning Liquid Residuals from Drums Used to Transport the Raw Material
basis: EPA/OPPT Drum Residual Model, CEB standard 3% residual.

Air
Output 2: 6.4E-5 kg/site-day over 250 day/yr from 5 sites or 8.0E-2 kg/yr
to: Air
from: Cleaning Liquid Residuals from Drums Used to Transport the Raw Material
basis: EPA/OPPT Penetration Model.

Water or Incineration or Landfill
Conservative: 8.0E+0 kg/site-day over 250 day/yr from 5 sites or 1.0E+4 kg/yr
to: uncertain
from: Equipment Cleaning Losses of Liquids from Multiple Vessels
basis: EPA/OPPT Multiple Process Vessel Residual Model, CEB standard 2% residual.

Air
Output 2: 9.4E-2 kg/site-day over 250 day/yr from 5 sites or 1.2E+2 kg/yr
to: Air

from: Equipment Cleaning Losses of Liquids from Multiple Vessels
basis: EPA/OPPT Mass Transfer Coefficient Model.

RELEASE TOTAL

2.5E+4 kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Tot. # of workers exposed via assessed routes: 50
Basis: GS estimates 2 - 10 workers/site for [redacted] manufacture.

Dermal:

Exposure to Liquid
High End: 1.8E+3 mg/day over 250 days/yr
Number of workers (all sites) with Dermal exposure: 50
Basis: Unloading Liquid Raw Material from Drums; EPA/OPPT 2-Hand Dermal Contact with Liquids Model.

Inhalation:

Exposure to Vapor
Worst Case: 6.7E+1 mg/day over 250 days/yr
Typical: 1.1E+0 mg/day over 250 days/yr
Number of workers (all sites) with Inhalation exposure: 50
Basis: Unloading Liquid Raw Material from Drums; EPA/OPPT Mass Balance Model. Note PMN is not a highly volatile liquid; therefore, exposure data for CFC/CFC substitutes provided in GS are not applicable. GS recommends the use of CEB std. models for assessing exposures.

INHALATION MONITORING DATA REVIEW

1) Uncertainty (estimate based on model, regulatory limit, or data not specific to industry): Yes
2) (a) Exposure level > 1 mg/day? Yes
(b) Hazard Rating for health of 2 or greater? No
Inhalation Monitoring Data Desired? Yes (both criteria met)